

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

a first interface for file level input/output (I/O);

a second interface for block level I/O;

a plurality of physical volumes upon which ~~logical volumes~~ file systems are represented;

a first controller which processes file level I/O requests; and

a second controller which processes block level I/O requests,

wherein, in response to a file system protect request directed to a particular ~~logical volume~~ file system with a specified period of time, the particular ~~logical volume~~ file system is protected for the specified period of time and a physical volume of the particular ~~logical volume~~ file system is also protected for the specified period of time, and

wherein once the particular ~~logical volume~~ file system is protected, write requests to the particular ~~logical volume~~ file system or physical volume of the particular ~~logical volume~~ file system via either the first or second controller are not permitted until expiration of the specified period of time.

wherein information regarding whether or not the particular ~~logical volume~~file system is protected is stored in a volume status table having a plurality of entries which indicate statuses of the particular ~~logical volume~~file system, and

wherein said entries include a first status indicating a retention period for the particular ~~logical volume~~file system, the retention period indicating how long data in the particular ~~logical volume~~file system should remain unchanged and thereby determining when data can next be written to the particular ~~logical volume~~file system.

2-5. (Canceled).

6. (Currently Amended) A storage system according to claim 1, wherein said entries indicate a second status of each ~~file system~~volume defining whether the ~~file system~~volume is exported or un-exported.

7-8. (Canceled).

9. (Original) A storage system according to claim 1, wherein said first controller is a network attached storage controller which processes file level I/O requests.

10. (Previously Presented) A storage system according to claim 1, wherein said second controller is a disk controller which processes block level I/O requests.

11. (Original) A storage system according to claim 1, wherein said first interface is an Ethernet interface which processes file level I/O requests.

12. (Original) A storage system according to claim 1, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

13. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

- a network attached storage (NAS) gateway; and

- a storage system which is connected to said NAS gateway,

- wherein said NAS gateway comprises:

- a first interface for file level I/O,

- a third interface for block level I/O, and

- a first controller which processes file level I/O requests,

- wherein said storage system comprises:

- a second interface for block level I/O, said second interface being connected to said third interface,

- a plurality of physical volumes upon which ~~logical volumes~~ file systems are represented, and

a second controller which processes block level I/O requests,

wherein, in response to a file system protect request directed to a particular ~~logical volume~~ file system with a specified period of time, the particular ~~logical volume~~ file system is protected for the specified period of time and a physical volume of the particular ~~logical volume~~ file system is also protected for the specified period of time,

wherein once the particular ~~logical volume~~ file system is protected, write requests to the particular ~~logical volume~~ file system or physical volume of the particular ~~logical volume~~ file system via either the first or second controller are not permitted until expiration of the specified period of time,

wherein information regarding whether or not the particular ~~logical volume~~ file system is protected is stored in a volume status table having a plurality of entries which indicate statuses of the particular ~~logical volume~~ file system, and

wherein said entries include a first status indicating a retention period for the particular ~~logical volume~~ file system, the retention period indicating how long data in the particular ~~logical volume~~ file system should remain unchanged and thereby determining when data can next be written to the particular ~~logical volume~~ file system.

14-16. (Canceled).

17. (Currently Amended) A storage system according to claim 13, wherein said entries indicate a second status of each file system~~volume~~ defining whether the file system~~volume~~ is protected or unprotected.

18. (Currently Amended) A storage system according to claim 13, wherein said entries indicate a second status of each file system~~volume~~ defining whether the file system~~volume~~ is exported or un-exported.

19-20. (Canceled).

21. (Original) A storage system according to claim 13, wherein said first controller is a network attached storage controller which processes file level I/O requests.

22. (Previously Presented) A storage system according to claim 13, wherein said second controller is a disk controller which processes block level I/O requests.

23. (Original) A storage system according to claim 13, wherein said first interface is an Ethernet interface which processes file level I/O requests.

24. (Original) A storage system according to claim 13, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

25. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

- a first interface for file level input/output (I/O);

- a second interface for block level I/O;

- a plurality of physical volumes upon which ~~logical volumes~~ file systems are represented;

- a first controller which processes file level I/O requests; and

- a second controller which processes block level I/O requests,

wherein, in response to a file system protect request directed to a particular ~~logical volume~~ file system with a specified period of time, the particular ~~logical volume~~ file system is protected for the specified period of time and a physical volume of the particular ~~logical volume~~ file system is also protected for the specified period of time,

wherein once the particular ~~logical volume~~ file system is protected, write requests to the particular ~~logical volume~~ file system or physical volume of the particular ~~logical volume~~ file system via either the first or second controller are not permitted until expiration of the specified period of time

wherein information regarding whether or not the particular ~~logical-volume~~file system is protected is stored in a volume status table having a plurality of entries which indicate statuses of the particular ~~logical-volume~~file system, and

wherein said entries include a first status indicating a retention period of the particular ~~logical-volume~~file system, the retention period indicating how long data in the particular ~~logical-volume~~file system should remain unchanged and thereby determining when data can next be written to the particular ~~logical-volume~~file system.

26-27. (Canceled).

28. (Currently Amended) A storage system according to claim 25, wherein said entries indicate a second status of each ~~file system~~volume defining whether the ~~file system~~volume is exported or un-exported.

29. (Original) A storage system according to claim 25, wherein said first controller is a network attached storage controller which processes file level I/O requests.

30. (Previously Presented) A storage system according to claim 25, wherein said second controller is a disk controller which processes block level I/O requests.

31. (Original) A storage system according to claim 25, wherein said first interface is an Ethernet interface which processes file level I/O requests.

32. (Original) A storage system according to claim 25, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

33. (Currently Amended) A storage system for handling input/output (I/O) requests from a plurality of servers, wherein a first server of the servers sends file I/O requests and a second server of the servers sends block I/O requests, comprising:

a storage media including a plurality of volumes, ~~at least one of the volumes~~ storing data of file systems;

a first controller, to be coupled to the first server, conducting I/O operations in response to the file I/O requests; and

a second controller, coupled to the storage media, to be coupled to the second server, conducting I/O operations in response to the block I/O requests;

wherein at least one file system volume of the file systems ~~volumes~~ which stores the data of file system is set to be write-protected from the second controller when the first controller receives a request from the first server to protect ~~the~~ said at least one file system in the storage media for a specified period of time,

wherein information regarding whether or not said at least one file system~~volume~~ is protected is stored in a volume status table having a plurality of entries which indicate statuses of said at least one file system~~volume~~, and

wherein said entries include a first status indicating a retention period of said at least one file system~~volume~~, the retention period indicating how long data in said at least one file system~~volume~~ should remain unchanged and thereby determining when data can next be written to said at least one file system~~the volume~~.

34. (Currently Amended) The storage system according to claim 33, wherein the first and second controllers share protection information including a status of protection and a retention period for each of the file systems~~volumes~~ which is set at file system level by the first controller.

35. (Previously Presented) The storage system according to claim 33, wherein the first controller receives the file I/O requests via a first interface and the second controller receives the block I/O request via a second interface.